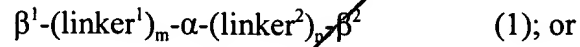- 27 -

Abstract

Single-chain agonists and/or antagonists of the glycoprotein hormones are disclosed. These proteins are of the formula

$$\beta^1\text{-(linker}^1)_m\text{-}\alpha\text{-(linker}^2)_n\text{-}\beta^2 \qquad (1);\ or$$

$$\beta^1\text{-(linker}^1)_m\text{-}\beta^2\text{-(linker}^2)_n\text{-}\alpha \qquad (2);\ or$$

$$\alpha\text{-(linker}^1)_m\text{-}\beta^1\text{-(linker}^2)_n\text{-}\beta^2 \qquad (3)$$

wherein each of β^1 and β^2 has the amino acid sequence of the β subunit of a vertabrate glycoprotein hormone or a variant thereof; "α" designates the α subunit of a vertabrate glycoprotein hormone or a variant thereof; "linker" refers to a covalently linked moiety that spaces the β^1 and β^2 subunits at distances from the α subunit and from each other effective to retain said activity, and each of m and n is independently 0 or 1.

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